

LINKING THE WATER QUALITY MODEL WITH THE REAL-TIME MAP AND AMBIENT PHENOMENA

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ABSTRACT

Water is an essential element in the sustenance of all forms of life, and most living organisms can survive only for short periods without it. The management of the water quality has been a critical issue for decades, but the current situation in the world is quite far from satisfactory. This is due to increasing population pressures as well as economic development. In terms of water resource management, water quality modelling has often served as a support tool in assessing the aquatic environment, with the calculated results providing valuable information for enhancing water quality management. A number of well-known water quality models have been developed and presented over the past several decades, which are characterized by their applicability to different water body types, such as estuaries, rivers, lakes, reservoirs, etc. Based on previous research works, water quality modelling has demonstrated the capability of predicting water quality under different circumstances and providing valuable information for water resource management. These models represent the results in one, two or three-dimension graphical output. However, these outputs are not linked to the real-time maps or the ambient phenomena, which cause an improper analysis and affect the decision making. The purpose of this study is to utilize the GIS techniques to link a one-dimension water quality model output with the spatial location for easier analysis and management as well as aiding the decision making process. The Klang River basin has been selected as a study area of this research. Qual2K model has been selected to assess and predict the water quality of the Klang River. Subsequently, the GIS tools and techniques were used to transfer and link Qual2K model output with the real-time map of the study area. The results showed the usefulness and the importance of the GIS in managing the river water quality.

Keywords: Water Quality, GIS, Klang River, QUAL2K.